



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,967	12/23/1999	Kunihito Seta	018976-154	6834

21839 7590 05/01/2002

BURNS DOANE SWECKER & MATHIS L L P  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER
----------

HECKENBERG JR, DONALD H

ART UNIT	PAPER NUMBER
----------	--------------

1722

14

DATE MAILED: 05/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/470,967	SETA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Donald Heckenberg	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20, 26-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 26-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 1722

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 29, 2002 has been entered.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 5, 7, 11, 26, 29 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 197 18 174 (previously of record; hereinafter DE '174).

DE '174 teaches an injection molding machine comprising a plasticating unit (5) for plasticating a thermoplastic resin, an injection unit (8) connected to the plasticating unit through a connection passage (the passage being parts 2<sub>0</sub> and 9 as shown in fig. 3), to inject the resin into the mold, and a buffering unit

Art Unit: 1722

(13) provided in the connecting passage to reserve the resin plasticated in the plasticating unit and feed the resin into the injection unit, wherein the buffering unit is different from the injecting unit (see fig. 1).

DE '174 further teaches the buffering unit to comprise a pot (12), a plunger (11) disposed in the pot applicable to be moved forward and backward in the pot, a buffering chamber provided between the pot and the plunger for reserving the plasticated resin (see fig. 3), and a fluid pressure cylinder (29) the plunger in the resin extrusion direction.

DE '174 further teaches a position detecting sensor (31) for detecting a displacement of the plunger, and plastication-controlling means (14) for controlling the plasticating unit corresponding to the displacement.

The amount of resin reserved in the buffering unit is dependent in relation to the amount of resin injected on the intended use of the apparatus, specifically the size of the product being made. It is well settled that the intended use of an apparatus is not germane to the issue of patentability of the apparatus. If the prior art structure is capable of performing the claimed use, then it meets the claim limitation(s). In re Casey, 370 F.2d 576, 580 152 USPQ 235, 238 (Cust. & Pat. App. 1967); In re Otto, 312 F.2d 937, 939, 136 USPQ 458, 459 (Cust. &

Art Unit: 1722

Pat. App. 1963). In the instant case, as DE '174 teaches a buffering accumulating unit with a discernable volume, it is inherently capable of reserving the amount of resin to be injected into the mold depending on the intended use of the apparatus, and therefore meets this limitation recited in claim 1.

Similarly, the limitation of claim 7 that a constant fluid pressure is transmitted to the fluid-pressure cylinder is directed the method of using the apparatus. The apparatus of DE '174 in using fluid pressure cylinder and source would be inherently capable of operating with a constant pressure, and thus meets the claim limitation.

4. Claims 3, 13, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by French Patent 1 533 319 (previously of record; hereinafter FR '319).

FR '319 teaches an injection molding machine comprising a plasticating unit (1) for plasticating a thermoplastic resin, and an injecting unit (7) connected to the plasticating unit through a connecting passage to inject the resin into a mold (see figs. 1-3), the plasticating unit comprising a cylinder (1), a screw (2) rotatable and movable in the axial direction in the cylinder, means (9) for rotation driving the screw, a

Art Unit: 1722

buffering chamber which is different from the injecting unit and which is defined by the top portion of the screw and the cylinder to reserve the plasticated resin in an amount at least equal to the injection quantity of the resin per shot (see fig. 2), and means (8) for energizing the screw forward in the axial direction to feed the resin in the buffering chamber into the injection unit, the energizing means comprising a fluid pressure cylinder (8).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 1722

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 4, 6, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 in view of Cheng (US Pat. No. 5,098,267; previously of record).

DE '174 teaches the apparatus as described above. DE '174 fails to teach the energizing means for the plunger to comprise a spring or an electric actuator.

Cheng teaches an injection molding apparatus comprising an injecting plunger (12), wherein the plunger is energized by a

Art Unit: 1722

spring (18) or a mechanical device as an alternative mechanical device for a fluid pressure cylinder (col. 3, lns. 62-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 as such to have used a spring or a mechanical device such as an electric actuator as the energizing means for the injection plunger in the injection plunger embodiment because this is a suitable alternative to provide the energizing force for the injection plunger as suggested by Cheng.

9. Claims 9, 17, 19 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 in view of Nakazawa et al. (US Pat. No. 6,042,760).

DE '174 teaches the apparatus as described above. DE '174 fails to teach the apparatus to further comprise a position detecting sensor for detecting the placement of the plunger, or the position of screw, and a plastication controlling means for controlling the plasticating unit corresponding to the displacement detected by the position sensor.

Nakazawa teaches an injection molding apparatus comprising an injection screw (3) which also function as an injection plunger, wherein the screw is provided with position sensor (39)



Art Unit: 1722

and controller means for adjusting the plastication unit based on the displacement and position of the plunger (col. 3, lns. 28-35).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 as such to have provided the apparatus with position sensor in working relation either the screw or the injection plunger and a plastication controlling means as suggested by Nakazawa because this would allow for control of the material feed and injected into the mold.

10. Claims 8 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 in view of Taniguchi (US 5,002,717).

DE '174 teaches the apparatus as described above. DE '174 fails to teach a pressure sensor for detecting a pressure in the buffering chamber, and a pressure controlling means for controlling the energizing means corresponding to the value detected by the pressure sensor so that the pressure in the chamber is kept constant.

Taniguchi teaches an injection molding apparatus comprising an injection plunger (4) and buffering chamber assembly wherein the pressure in the chamber (injection pressure) is monitored

Art Unit: 1722

using a pressure sensor (19) which works with a pressure controlling means for controlling the energizing means of the apparatus based upon the value detected by the pressure sensor (col. 4, lns. 45-59).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 as such to have provided the apparatus with a pressure sensor for detecting the pressure of the buffering chamber and a pressure controller working with the pressure sensor to adjust the energizing means as suggested by Taniguchi because this would allow for better control of the pressure of the material being injected into the mold.

11. Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 modified by Cheng as applied to claims as applied to claims 4, 6, 28, and 30 above, and further in view of Taniguchi.

DE '174 and Cheng teach the apparatus as described above. DE '174 and Cheng fail to teach a pressure sensor for detecting a pressure in the buffering chamber, and a pressure controlling means for controlling the energizing means corresponding to the value detected by the pressure sensor so that the pressure in the chamber is kept constant.

Art Unit: 1722

Taniguchi teaches an injection molding apparatus comprising an injection plunger (4) and buffering chamber assembly wherein the pressure in the chamber (injection pressure) is monitored using a pressure sensor (19) which works with a pressure controlling means for controlling the energizing means of the apparatus based upon the value detected by the pressure sensor (col. 4, lns. 45-59).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 and Cheng as such to have provided the apparatus with a pressure sensor for detecting the pressure of the buffering chamber and a pressure controller working with the pressure sensor to adjust the energizing means as suggested by Taniguchi because this would allow for better control of the pressure of the material being injected into the mold.

12. Claim 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 modified by Cheng as applied to claims 4, 6, 28, and 30 above, and further in view of Nakazawa.

DE '174 and Cheng teach the apparatus as described above. DE '174 and Cheng fail to teach the apparatus to further comprise a position detecting sensor for detecting the placement of the plunger, or the position of screw, and a plastication

Art Unit: 1722

controlling means for controlling the plasticating unit corresponding to the displacement detected by the position sensor.

Nakazawa teaches an injection molding apparatus comprising an injection screw (3) which also function as an injection plunger, wherein the screw is provided with position sensor (39) and controller means for adjusting the plastication unit based on the displacement and position of the plunger (col. 3, lns. 28-35).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 and Cheng as such to have provided the apparatus with position sensor in working relation either the screw or the injection plunger and a plastication controlling means as suggested by Nakazawa because this would allow for control of the material feed and injected into the mold.

13. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE '174 modified by Teniguchi as applied to claims 8 and 32 above, and further in view of Nakazawa.

DE '174 and Teniguchi teach the apparatus as described above. DE '174 and Teniguchi fail to teach the apparatus to

Art Unit: 1722

further comprise a position detecting sensor for detecting the placement of the plunger, or the position of screw, and a plastication controlling means for controlling the plasticating unit corresponding to the displacement detected by the position sensor.

Nakazawa teaches an injection molding apparatus comprising an injection screw (3) which also function as an injection plunger, wherein the screw is provided with position sensor (39) and controller means for adjusting the plastication unit based on the displacement and position of the plunger (col. 3, lns. 28-35).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of DE '174 and Teniguchi as such to have provided the apparatus with position sensor in working relation either the screw or the injection plunger and a plastication controlling means as suggested by Nakazawa because this would allow for control of the material feed and injected into the mold.

14. Claims 10 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR '319 in view of Nakazawa.

Art Unit: 1722

FR '319 teaches the apparatus as described above. FR '319 fails to teach the molding machine to comprise a position detecting sensor for detecting a displacement of the screw, and a plastication-controlling means for controlling the plasticating unit corresponding to the displacement.

Nakazawa teaches an injection molding apparatus comprising an injection screw (3) which also function as an injection plunger, wherein the screw is provided with position sensor (39) and controller means for adjusting the plastication unit based on the displacement and position of the plunger (col. 3, lns. 28-35).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of FR '319 as such to have provided a plunger position detecting sensor and controller because this would allow for greater control of the apparatus as suggested by Nakazawa.

15. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR '319 in view of Cheng.

FR '319 teaches the apparatus as described above, including the use of a fluid pressure cylinder (8) for the energizing

Art Unit: 1722

means for the screw. FR '319 fails to teach the energizing means for the plunger to comprise a spring or an electric actuator.

Cheng teaches an injection molding apparatus comprising an injecting plunger (12), wherein the plunger is energized by a spring (18) or a mechanical device as an alternative mechanical device for a fluid pressure cylinder (col. 3, lns. 62-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of FR '319 as such to have used a spring or a mechanical device such as an electric actuator as the energizing means for the injection plunger in the injection plunger embodiment because this is a suitable alternative to provide the energizing force for the injection plunger as suggested by Cheng.

16. Applicant's arguments with respect to claims 1-20, 26-34 have been considered but are moot in view of the new ground(s) of rejection.

17. The following reference is cited, but not relied upon, as being pertinent to the instant application.

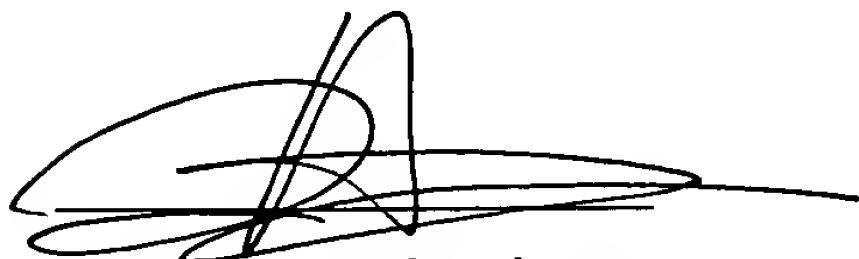
Art Unit: 1722

Nakamura et al. (US Pat. No. 5,925,295) is the U.S. equivalent to DE '174.

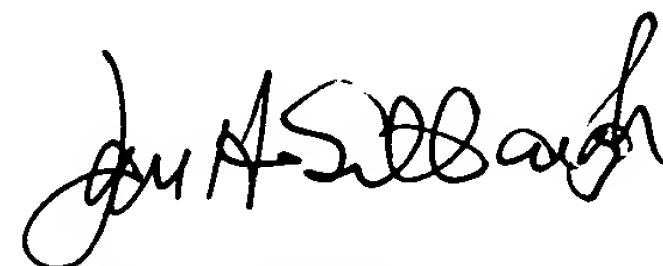
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald Heckenberg whose telephone number is (703) 308-6371. The examiner can normally be reached on Monday through Friday from 9:30 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Jan Silbaugh, can be reached at (703) 308-3829. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for responses to non-final action, and 703-872-9311 for responses to final actions. The unofficial fax phone number is (703) 305-3602.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Donald Heckenberg  
April 29, 2002



JAN H. SILBAUGH  
SUPERVISORY PATENT EXAMINER  
ART UNIT 1722

04/30/02